



United States
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

MEMORANDUM

TO : EC

DATE: July 18, 2002

Through: Todd A. Stevenson, Secretary, OS

FROM : Martha A. Kosh, OS

SUBJECT: Regulatory Options for Addressing Upholstered Furniture Flammability

ATTACHED ARE COMMENTS ON THE CF 02-2

<u>COMMENT</u>	<u>DATE</u>	<u>SIGNED BY</u>	<u>AFFILIATION</u>
CF 02-2-1	5/20/02	Philip Wakelyn Sr. Scientist Environmental	National Cotton Council of America 1521 New Hampshire Ave NW, Washington, DC 20036
CF 02-2-2	6/18/02	Dr. Gary Stevens Mr. Alan Mann Dr. Alan Emsley	University of Surrey Polymer Research Centre Guildford, Surrey GU2 7XH, UK
CF 02-2-3	6/28/02	Nicolette Rainey Market Manager	American Fibers & Yarns Company 55 VilCom Circle Suite 300 Chapel Hill, NC 27514
CF 02-2-4	6/28/02	James F. Hoebel	13506 Star Flower Ct. Chantilly, VA 20151
CF 02-2-5	6/07/02	Adity Phadnis Director of Quality	Wearbest Sil-Tex Mills Ltd. P.O. Box 589 325 Midland Ave. Gafield, NJ 07026
CF 02-2-6	7/08/02	John Hobson Group Vice President	Wellman, Inc. The Fibers Division P.O. Box 31331 Charlotte, NC 28231
CF 02-2-7	7/18/02	Louis Peters	Polyurethane Foam Assoc. P.O. Box 1459 Wayne, NJ 07474



1521 New Hampshire Avenue, NW • Washington, DC 20036
(202) 745-7805 • FAX (202) 483-4040

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May 20, 2002

Office of the Secretary
U.S. Consumer Product Safety Commission
Washington, DC 20207-0001

**Re: Upholstered Furniture Flammability Proceedings; Comments of the
National Cotton Council**

Dear Mr. Secretary:

These comments are submitted by the National Cotton Council (NCC) in response to the Consumer Product Safety Commission (CPSC) Notice of public meeting and request for comments regarding Regulatory Options for Addressing Upholstered Furniture Flammability (67 FR 12916; March 20, 2002).

The NCC is the central organization of the U.S. cotton industry, representing producers, ginner, oilseed crushers, merchants, cooperatives, warehousemen and textile manufacturers in 18 states. NCC represents approximately 25,000 cotton producers and about 1,000 gins that annually gin about 18 million bales of cotton. NCC mill members use over 7.5 million bales domestically to produce cotton textiles. NCC has a long history of commitment to product safety and has worked cooperatively with CPSC on flammability issues since CPSC was formed in 1974. Several of NCC member companies produce upholstered furniture fabrics and some cotton interest organizations make furniture components.

The behavior of cellulosic upholstery fabrics (more than 40% of the present U.S. market) in flammability tests is very complicated and affected by many variables. It has been shown that smolder ignition resistance of cellulosic fabrics can be adversely affected by open flame ignition resistance treatments. CPSC should be required to address the issue of the effect of open flame ignition resistance treatments on smolder ignition propensity of cellulosic upholstery fabrics in any flammability standard for furniture that CPSC shows is necessary.

There is question about the human and environmental toxicity of fire retardant treatments that would be anticipated to be used for upholstered furniture fabrics to meet the draft 2001 CPSC standard for flammability of upholstered furniture. To avoid another "Tris" situation that would put textile fabric manufactures at risk, CPSC should require verification of the safety, similar to that required by the recently revised EU eco-label for textile, of any fire retardant treatments used to meet any standard they show is necessary.

Any flammability standard that CPSC promulgates for upholstered furniture must address an unreasonable risk, be the least burdensome alternative, be economically and technologically feasible, address human, workplace and environmental risk, and be cost effective/beneficial.

More specific discussion follows.

1. CPSC should recognize that fire retardant treatments for open flame resistance can adversely affect smoldering ignition propensity.

Reports indicate that flammability of cellulosic fabrics is very complicated and that smolder ignition propensity of some cellulosic fabrics is affected by open flame ignition resistance treatments.

CPSC 2001 Briefing Package. Khanna (Cigarette - Open Flame Relationship. *CPSC Memorandum to Dale Ray*. Oct. 23, 2001; 2001 CPSC Briefing Package, p. 232) concludes from CPSC testing that the 2001 CPSC draft standard contains provisions to limit both flaming and smoldering combustion; that although the standard does not utilize a smoldering ignition source, the provisions account for smoldering combustion. This may be true for some upholstered furniture fabrics but their own testing indicates that "Cellulosic flame resistant treated upholstery fabrics may not always resist both small open flame and cigarette ignition." [L. Fansler, *CPSC Technical Report: Summary of Flammability Tests Upholstered Furniture Project* (1998-2000). Oct. 19, 2000; 2001 CPSC Briefing Package, p. 246]. In a CPSC test three FR backcoated fabrics ignited when exposed to a cigarette (G. Stafford and A. Bernatz. *UFAC vs. CPSC Cigarette Tests of Upholstery Fabrics*. *CPSC Memorandum to Dale Ray*. May 30, 2000; 2001 CPSC Briefing Package, pp.514-522). All the fabrics that ignited were cellulosic (cotton) fabrics.

UFAC studies. Tests by UFAC have shown that cigarette ignition propensity of 100% cotton fabrics does not correlate with the weight of the fabric (J. Ziokowski and H. Talley. 1999. *The Effects of FR Backcoatings on the Cigarette Ignition Propensity of 100% Cotton Fabrics*. *Paper presented at the AFMA Flammability Conf.* Mar. 9, 1999). Also in studies with fabrics backcoated in the US and the UK to pass BS 5852 and the 1997 CPSC tests, most cotton fabrics that were UFAC Class I became Class II. [This is considered a failure of the test; UFAC Class II fabrics require an approved barrier between the fabric and conventional polyurethane foam in the horizontal seating surfaces; Class I fabrics can be used directly over conventional polyurethane foam.] The authors concluded that the fire performance of cellulose is very complex and depends on many things, such as, method of yarn preparation (e.g., open-end vs. ring spun), yarn type, fabric construction, and dyeing and finishing methods. The aesthetic of the 100% cotton fabrics were also altered by the FR-backcoating.

Smolder Ignition Study. Hirschler (M.M. Hirschler. *Comparison of the Propensity of Cigarettes to Ignite Upholstered Furniture Fabrics*. *Fire and Materials* 21 123-141, 1997) investigated the smoldering cigarette propensity of upholstery fabrics typically available in the consumer marketplace. Of the 500 fabrics tested, only 145 fabrics were ignitable by cigarettes, all of them predominantly (or completely) cellulosic. Hirschler found a fabric density threshold (8-9 oz/yd²) above which the percentage of cellulosic fabrics that are ignitable and flame spread rate of fabrics in a flaming ignition test are all unaffected. Others have found that lighter weight fabrics (< 6-7 oz/yd²) are usually better (mostly Class I fabrics) than heavier weight cotton fabrics in the UFAC fabric classification (smolder) test. Whether the cigarette is on a horizontal surface (e.g., mattress test) or in the crevice/vertical surface (e.g., furniture test) can affect the results of smolder ignition tests.

ATMI/AFMA Study. In 1998, 31 upholstery fabrics, selected to represent the variety of fiber types, fiber blends, weights, and constructions typical in the marketplace, were sent to a commercial backcoating operation in the United Kingdom. Each fabric was treated with a FR latex backcoating (decabrom and Sb_2O_3 and acrylic latex) in the U.K. to comply with the British Furniture and Furnishings Regulation (BS 5852). Two of the 31 ATMI/AFMA fabrics could not be treated to meet the British test criteria. The other 29 fabrics were found to meet the requirements of the British regulation by a NAMAS¹ certified laboratory and were returned to the U.S. for further testing.

Reimann (K.A. Reimann. Evaluation of CPSC Upholstered Furniture Flammability Test. *Proc. 2000 Beltwide Cotton Conferences*. National Cotton Council, Memphis, TN 2000. pp.827-837) tested the 31 fabrics for open flame ignition using the 1997 CPSC draft standard. [CPSC 1997 test and BS 5852 are similar. Some of the differences are: the butane gas delivery system for the CPSC test is more complex; the BS 5852 test is over CMHR foam and the CPSC test is over non-FR foam; the fabric soaking procedure (BS 5852 30 min. in specified hardness water; CPSC 24h soak in tap water); and the pass/fail criteria (BS 5852 smoldering is allowed if it extinguishes in < 15 min., flaming can not extend to the sample sides or seat front although a flame can extend up past the top of the seat back if it recedes and self extinguishes in < 120 sec.; CPSC test failure when any smoldering occurs > 120 sec. or when the sample burns or smolders to any edge, top, sides or seat front). The CPSC 2001 test differs from the CPSC 1997 test. The main differences are that the pass/fail criteria post-ignition smoldering/glowing combustion time is extended from 120 sec. to 15 min. and a seating barrier test is added as an alternative to the seating area test. BS 5852 now has a 15 sec. ignition time and the EU is considering adopting the current BS 5852 as a CEN standard. Also, there is movement in the U.K. to change the British FFR to 15 sec. Thus all of the European standards would be different from the 2001 CPSC test.] Fourteen of the fabrics failed the CPSC 1997 test. Five of the seven 100% cotton fabrics and four of the ten cotton blend fabrics failed the test (see Reimann, Table F).

In 1999, 30 of the 31 fabrics were tested at the Grundy Textile Evaluation Laboratory, Philadelphia University for UFAC fabric classification before the FR-backcoating was applied and again after FR-backcoating (Philadelphia University. *A Study of the Effects of FR Backcoating on Selected Upholstery Fabrics*, The Grundy Textile Product Evaluation Laboratory of Philadelphia University, June 16, 1999). The results were as follows:

- 1 fabric improved in cigarette ignition resistance (UFAC Class II became UFAC Class I)
- 5 fabrics became less resistant to cigarette ignition (UFAC Class I became UFAC Class II)
- 24 fabrics did not change their UFAC Classification (all remained UFAC Class I).

A Class II fabric is considered a failure in the UFAC fabric classification test. Further analysis of the test data shows that of the 12 fabrics in the study which are predominately cellulosic ($\geq 70\%$ cotton, rayon, or linen), 42% became more prone to cigarette ignition after FR-treatment, while only 8% became less prone to cigarette ignition.

In summary, there were 12 fabrics in the study that were predominately cellulosic ($>70\%$) (see Table 1).

¹ National Accreditation of Measurement and Sampling, a service of the United Kingdom Accreditation Service (UKAS). UKAS specifies criteria that laboratories must meet. Only a laboratory that has been accredited by UKAS can issue of NAMAS report or certificate.

- For 1 fabric, resistance to cigarette ignition improved. (8%).
- For 5 fabrics, resistance to cigarette ignition got worse (failed the UFAC test). (42%)
- For 6 fabrics, resistance to cigarette ignition was unchanged. (50%)

Table 1. Summary of UFAC Fabric Classification (Smolder) Test results

Code	Fiber Content	UFAC Fabric Classification Test results before and after chemical treatment (BS 5852)
I	92% cotton, 8% rayon	Class II to Class I (passed BS 5852; passed CPSC 1997)
T	100% cotton	Class I to Class II (passed BS 5852; failed CPSC 1997)
Z	59% linen, 41% cotton	Class I to Class II (passed BS 5852; failed CPSC 1997)
Y	100% cotton	Class I to Class II (passed BS 5852; failed CPSC 1997)
BB	100% cotton	Class I to Class II (passed BS 5852; failed CPSC 1997)
CC	100% cotton	Class I to Class II (passed BS 5852; failed CPSC 1997)
A	60% cotton, 12% rayon, 28% nylon	Stayed Class I (passed BS 5852; failed CPSC 1997)
C	96% rayon, 4% PET	Stayed Class I (passed BS 5852; passed CPSC 1997)
E	100% cotton	Stayed Class I (passed BS 5852; passed CPSC 1997)
F	62% rayon, 38% cotton	Stayed Class I (passed BS 5852; passed CPSC 1997)
G	100% cotton	Stayed Class I (passed BS 5852; failed CPSC 1997)
H	100% cotton	Stayed Class I (passed BS 5852; passed CPSC 1997)

Summary: Inhibition of smoldering combustion and flaming combustion require very different types of chemical retardant action. The behavior in flammability tests of cellulosic fabrics, which are more than 40% of the present U.S. upholstered furniture market presently, is very complicated. Flammability of cellulosic fabrics is affected by fabric weight, yarn construction (e.g., open-end vs. ring spun), fabric construction, alkali metal content (J. Krasney. A Simple Method for Reducing Cigarette Fires. *Text Chemist Colorist* 24(11), 12, 1992), and dyeing and finishing methods as well as other variables. CPSC should fully consider the effect of open flame ignition resistance treatments for cellulosic fabrics on smolder ignition resistance of these type fabrics in any open flame ignition standard shown to be necessary.

2. To avoid another "Tris" situation for textile manufacturers, fire retardants that are used to meet a CPSC open flame standard should meet the toxicity requirements for fire retardants in the revised EU eco-label for textiles.

The 2001 CPSC test, although a performance standard, anticipates the use of fire retardant treatments to meet the open flame resistance requirements. In Europe there is great concern about the human and environmental toxicity of brominated and other fire retardants, because they can be persistent, bioaccumulative, and toxic. Some of these concern are discussed in "Brominated Flame Retardants and the Environment", a special issue of *Chemosphere* 46 Feb. 2002, edited by M. Alaee and R. Wenning (<http://www.elsevier.nl/locate/jnlmr/00362>). Several of the major producers of brominated fire retardants have indicated that they expect these chemicals to be banned in Europe soon.

The revised *The European ecological label for textile products* was approved on 20 Feb. 2002 (http://europa.eu.int/comm/environment/ecolabel/pdf/textiles/draftcriteriafinal_190202.pdf). This



CPSC Public Hearing 18 – 19 June 2002

Regulatory Options for Addressing Upholstered Furniture Flammability

**Flame Retardant Release
and Regulatory Developments in Europe**

written testimony by

Dr Gary C Stevens, Mr Alan Mann and Dr Alan Emsley

**Polymer Research Centre, University of Surrey
Guildford, Surrey GU2 7XH, UK**

Introduction

There have been recent developments in the UK and Europe aimed at gaining a better understanding of the release of flame retardants (FRs) from materials that are used in consumer products and particularly upholstered furniture.

Assessment of dermal, oral and inhalation exposure requires quantitative FR release data from pristine host materials and at different points in their life-cycle particularly during consumer use when the materials are subjected to ageing and wear processes. However, it cannot be assumed that any FR loss will always be associated with free FR in its original chemical form or in a form that would enable it to be transported and delivered by an appropriate exposure mechanism and then be bioavailable. A new research project in the UK is attempting to resolve these issues to improve the exposure assessment part of current and future risk assessments.

A number of regulatory developments in Europe are also occurring which relate to FR issues and further work is underway to consolidate the benefits of the 1988 UK upholstered furniture fire regulations.

1. Flame Retardant Release

The Polymer Research Centre at the University of Surrey (Dr Gary Stevens) and the Bolton Institute (Professor Richard Horrocks) have recently started a new research project that is determining the release of flame retardant systems from a variety of materials used in consumer products. This work is being funded by a consortium of companies under the umbrella of the European Flame Retardants Association (EFRA) and its results will be published in the open literature. Both Dr Stevens and Professor Horrocks served as invited members of the US National Academy of Sciences/National Research Council (NAS/NRC) subcommittee on the risk assessment of flame retarded chemicals which published its findings in June 2000 [1] and were involved in developing the exposure scenarios and risk assessment methodology used in the NAS/NRC report.

The project seeks to obtain reliable release information of FRs from a number of consumer product matrices to support a better understanding of potential consumer exposure and to support formal human exposure and environmental risk assessments [2]. The objectives are to:

1. Undertake systematic FR release studies of representative high priority FR formulations and matrices subject to ageing and wear protocols which simulates what could occur during the lifetime of nominated consumer products – use is being made of industry, regulator and international standard methods where these exist. Attention is being paid to using representative (and defined) formulations and material technologies and constructions for the consumer products of interest.
2. Perform FR release studies to determine the release of FR compounds in body fluid equivalent solutions, in vapour form and solid particulate form that could lead to human oral, dermal and inhalation exposure, following ageing and wear protocols. In all cases a mass balance approach has been adopted and a variety of quantitative analytical techniques are being used to confirm the chemistry and physical form of the components released.

Particular attention is being paid to:

- (i) **oral and dermal exposure:** body fluid equivalent extractions with determination of the chemical and physical form of the released components (elemental, molecular and structural form).

(ii) **inhalation:** determination of the vapour concentration and the particulate concentration, its size distribution and the equivalent aerodynamic size distribution. Particulate analysis is being undertaken to determine if the FRs are released as a free FR or matrix encapsulated FRs. In addition, extraction measurements are being made on the particulates to determine the extractible fraction and its chemistry.

(iii) **compound chemistry:** a variety of industry standard and other analytical methods are being used to determine if released FR chemicals remain unchanged or are modified.

The ageing protocols include conventional environmental ageing chambers for accelerated thermal, UV, and humidity ageing. Wear protocols appropriate to the articles in question are being used - for example the standard Martindale abrasion test for textiles [3] is being used for FR backcoated textiles and the standard foam industry pounding test for FR treated furniture foams. Modifications of the test instruments have been made to capture and measure released volatile and particulate fractions. Aerodynamic particle size distributions and particle charging are being measured using electrostatic low pressure inertial impaction (ELPI).

Phase 1, which has recently started, is studying backcoated fabrics and flexible foams with FR formulations that are well defined and representative of those used in the most common FR treatments of upholstered furniture. These include:

Backcoated textiles:

- (a) Antimony trioxide – decabromodiphenylether (DBDE) in a known representative backcoating formulation on a standard cotton fabric construction
- (b) Antimony trioxide – hexabromocyclododecane (HBCD) in the same backcoating/textile construction as (a)
- (c) Clay filler backcoating on the same backcoating/textile construction as a control.

The FR treated backcoated textiles all pass BS5852 requirements and close to 100% recovery of the products of mechanical wear in the textile wear protocol is being achieved.

Foams:

- (a) melamine and tris (monochloropropyl) phosphates (TCPP)
- (b) melamine and tris (1,3-dichloropropyl 1-2) phosphate (TDCPP) – a combustion modified high resilience (CMHR) foam.
- (c) Unfilled foam will act as the control

This first phase of the project is due to report in the first quarter of 2003 and it is likely that important early results will be available and be published before this time.

2. European Regulatory Developments

Significant activity is taking place in Europe to complete priority risk assessments of FR chemicals. This is against a background where the European Commission have introduced a White Paper “Strategy for a future Chemicals Policy” which proposes to subject new and existing chemicals to the same REACH (Registration, Evaluation and Authorization) procedure.

The current status of EU risk assessments for priority FR compounds is given below.

(a) Antimony trioxide

The EU risk assessment for this compound has recently begun – the time for completion is not clear. The rapporteur for this assessment is Sweden.

(b) Brominated FRs

PentaBDE: The EU risk assessment for pentabromodiphenyl ether (PBDE) is complete and it is proposed that this FR be banned from July 2003. In parallel with this proposal the EU Parliament sitting on 10 April 02 gave the Council a common position that by January 2007 new electric and electronic equipment put on the market will not contain (among other things) PBDEs. This was amended by Parliament to bring the date forward to January 2006. Recent work has shown that it is only pentaBDE of the polybrominated diphenyl ethers that has been found in breast milk and latest findings indicate the level has been falling since 1997 by 30% every two years.

OctaBDE: The EU risk assessment is ongoing and is available in draft (rapporteur UK/France). The Council common position is octabromodiphenyl ether (octaBDE) containing more than 0.1% pentaBDE should no longer be allowed once pentaBDE is restricted. This was amended by Parliament so that, although the RAs are not complete, the marketing and use of octa and decaBDEs should be restricted. OctaBDE is undergoing risk reduction measures.

DecaBDE: The EU risk assessment is ongoing and is available in draft (rapporteur UK/France):

HBBD: The EU risk assessment for hexabromodiphenyl ether is available in draft (rapporteur UK/France).

TBBPA: The EU risk assessment for tetrabromobisphenol A is underway (rapporteur UK).

(c) Phosphorus Containing FRs

EU risk assessments are ongoing for the following FRs: **TCEP** (tris(2-chloroethyl) phosphate – rapporteur: Germany), **TBCP** (tris(2-chloroisopropyl) phosphate – rapporteur: Ireland/UK), **TDCPP** (tris(1,3-dichloroisopropyl) phosphate – rapporteur: Ireland/UK) and **BCTBCP** (2,2-bis(chloromethyl) trimethylene bis(bis(2-chloroethyl)) phosphate – rapporteur: Ireland/UK).

(d) EU Commission White Paper: “Strategy for a future Chemicals Policy”

This consultation paper is currently open to responses – in brief it proposes that:

1. New and existing chemicals will be subject to the same procedure called REACH (Registration, Evaluation and Authorization).
2. Costs and time to report will be contained by replacing comprehensive risk assessments by targeted assessments.
3. Raising the threshold tonnage at which mandatory testing is required.
4. Allowing accelerated risk management for substances “of not very great concern” (estimated at 80% of substances).
5. Taking account of exposure in different uses in selecting substances for evaluation.
6. Grouping of substances to minimize testing where appropriate.
7. Development of further non-animal tests.

8. Industry, including end users and importers, will share cost of testing and will be responsible for accelerated risk management.
9. Timing of submission of registration dossiers will depend on production tonnage: 1000T by 2005, 100T by 2008, 1T by 2012
10. Available data to be reviewed by experts from 15 member states at expanded European Chemicals Bureau.

3. UK Furniture Fire Regulation Benefits

Previous research has been reported for the UK Department of Trade and Industry on the countervailing risks and benefits of FRs [4] and the effectiveness of the 1988 furniture fire regulations [5]. The latter is being re-examined with more recent statistics to consolidate the benefit assessments and to establish the magnitude of consumer product fire risks internationally. This work is being supported by the European Flame Retardants Association (EFRA) with information being provided by many European fire, emergency and statistics agencies. Early results have shown that the benefits previously estimated for the UK [5] are sustained even when account is taken of decreasing smoking trends in the population and increasing domestic smoke alarm penetration in the UK [6].

References

1. NRC/NAS Subcommittee on Risk Assessment of Flame Retardants, Toxicological Risks of Flame-Retardant Chemicals, National Research Council, Washington DC, July 2000, National Academy Press, Washington, ISBN 0-309-07047-3.
2. Stevens G C and Horrocks R J; "Flame Retardant Release and Exposure from Fire Protected Products and Materials", presented at the 13th Annual BCC Conference on Recent Developments in Flame Retardancy of Polymeric Materials, 3 – 5 June 2002, Stamford CT, USA.
3. British Standards, BS EN ISO 12947-1:1999.
4. Stevens G C and Mann A, Risks and Benefits in the Use of Flame Retardants in Consumer Products, report for UK Department of Trade and Industry, January 1999, URN 98/1026 (available from DTI); Technical Annexes available from the Polymer Research Centre, University of Surrey.
5. Emsley A M and Stevens G C, "Effectiveness of the Furniture and Furnishings (Fire) (Safety) Regulations 1988," for the Department of trade and Industry, URN 00/783, June 2000 (49 pages).
6. Emsley A M, Lim L and Stevens G C, "International Fire Statistics and the Potential Benefits of Fire Counter-Measures", proceedings of Flame Retardants 2002, 5-6 February 2002, London, Interscience Publishers.

American

FIBERS AND YARNS COMPANY

June 28, 2002

Nicolette F. Rainey
Market Manager
American Fibers and Yarns Co.
55 VilCom Circle
Suite 300
Chapel Hill, NC 27514

Distribution:

Mr. Dale R. Ray
Product Manager
Consumer Products Safety Commission
4330 East-West Highway
Bethesda, MD 20814-4408

Mr. John McCormack
Manager, R&D
California Bureau of HF
3485 Orange Grove Ave
North Highlands, CA
95660-5595

Dear Sirs:

We thank you for the opportunity to discuss our concerns about the current version of proposed regulations to revise the flammability standards for residential upholstery. While we all see good reason to create safer home environments for our families, we believe that industry groups can work together with the agency to reach these goals in a manner that imposes less catastrophic burdens on the domestic fabric and furniture industries.

American Fibers and Yarns (AF&Y), Chapel Hill, NC, is a premier supplier of synthetic upholstery yarns to the residential upholstery fabric industry. A representative from AF&Y attended the public meetings held by the CPSC on June 18 and 19, 2002, in Bethesda, MD. Our three top customers, Quaker, Culp, and Joan/Mastercraft gave presentations at the meeting outlining their concerns as decorative fabric manufacturers. We echo their sentiments and reference the following:

PRACTICALITY OF IMPLEMENTATION

Cost of compliance. All segments of the furniture supply chain will suffer grave and negative financial consequences if these standards are implemented. Monetary cost of compliance numbers range from \$25 million to \$200 million. Fabric companies have described these added costs as “catastrophic”. Some fabric manufacturers may not survive, not because they are producing dangerous fabrics, but because the costs to conduct the necessary tests and otherwise comply with the revised standards will exceed any reasonable cost of doing business. The companies that manage to survive and comply with the new standards will be priced out of the low to moderately priced business tiers. The products that fill this void may come from offshore sources, and we fear that offshore manufacturers will be much less likely to comply with these new standards.

Imports. There has been no indication by either California or the CPSC that the agencies will have the resources available to effectively enforce the standards in the import market. We doubt that there will be adequate enforcement personnel available to ensure compliance by overseas furniture and fabric manufacturers. The textile and apparel industry media repeatedly report the lack of success in monitoring transshipments of quota-regulated apparel and other consumer goods, counterfeit consumer branded goods, and trade treaty violations. Unless the standards are effectively enforced against violating importers of fabrics and furniture, domestic manufacturers who comply with the standards will be left at a severe competitive disadvantage.

Sampling. The test protocol with respect to sampling and testing is unwieldy. The amount of testing that will be required is simply not plausible. Every fabric manufacturer at the CPSC public hearings voiced this concern.

ENVIRONMENTAL IMPACT

Chemical usage. Several companies cited literature about the unknown environmental impact surrounding use and overuse of flame retardant chemicals. An environmental impact study might be underway into the concerns surrounding FR chemicals in use. Regardless of the outcome of the study, the amount of chemicals entering the waste stream, unhealthy or not, should be a cause for concern. This at a time when the nation is applauding the textile industry for their environmental awareness and the financial

lengths they have taken to reduce waste and chemical use. This increased voluntary enforcement has been transparent to the consumer and has not negatively impacted consumer goods.

Air pollution. It does not appear that the regulatory agencies have considered whether the burning of millions of yards of fabric, foam, fillings, and battings that have been treated with flame retardant chemicals will have an impact of air quality. This is yet another environmental consequence of the proposed regulations.

CONSUMER IMPACT

Consumer education. We have no indication that anyone has bothered to ask the consumer if he/she welcomes the effects of these standards. Decorative goods are purchased with discretionary income and are highly deferrable purchases. The home furnishings market has seen an evolutionary revitalization in the past decade in large part due to the proliferation of beautiful fabrics. Fabrics are the primary way consumers change or spice up their internal living spaces. Consumers have a renewed love affair with fabrics and today can enjoy luxurious, drapeable, and aesthetically pleasing piecegoods at affordable prices. Ms. Jan Jessup of Calico Corners gave an excellent and passionate display of the infinite choices now available.

We question if anyone has conducted a focus group to quiz the average female consumer, in all income levels from low to high, whether this is the direction they wish their regulatory agencies to follow. These groups should be shown sofas made with both pre and post compliance components, informed of the resulting increase in retail price and asked if they will be willing to pay higher prices for goods with diminished aesthetics in order to meet standards built for an unlikely contingency. If not, the regulatory agencies should consider the economic impact to the industries of reduced sales of these goods. If these consumer focus groups have not been conducted, we highly recommend they be considered. Reduced fire deaths can be achieved with less expense by mandating the installation of smoke detectors on every level of the home. This approach has been documented to decrease fire deaths.

Attack the source. Furniture does not cause fires. Furniture is one potential fuel source. We wonder if the costs/benefits of these proposed standards have been weighed against other potential means to reduce fire deaths, for

instance, a mandatory requirement that smoke detectors be included at all levels of houses and apartments.

INDUSTRY IMPACT

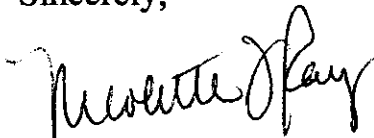
Industry death blow. The upholstered fabric and furniture industries, against great odds, have managed to survive in an era that has seen the demise of the US Textile and Apparel Industries because that segment could not manage, regardless of record productivity and technology gains, to compete in a global environment. In one swoop, these standards may deal a deathblow to the last remaining domestic textile and allied industries. I know this is not the intended result.

Indemnity. We can find no indication that if decorative fabric manufacturers manage to comply with the new standards, that this compliance will be guaranteed to provide them a defense to tort liability for persons injured in fires. We think it is only fair that manufacturers who comply with these tough standards be protected from liability by specific regulation or legislation.

Recommendations. American Fibers & Yarns wants to be part of the solution. We recommend the establishment of a Solution Development Team. The team would consist of the regulatory agencies and all suppliers in the chain. AF&Y would be active participants. The supply chain includes all exterior and interior component suppliers. We would work as a team to develop a furniture composite that would make furniture less likely to burn and give residential home occupants more time to escape a fire.

Thank you for your considerations.

Sincerely,



Nicolette F. Rainey
Market Manager

864-235-5651
nrainey@afyarns.com

James F. Hoebel
13506 Star Flower Court
Chantilly, Virginia 20151

June 28, 2002

Upholstered Furniture Flammability Proceeding

Office of the Secretary
Consumer Product Safety Commission
Washington, DC 20207

This letter responds to the March 20, 2002, Federal Register Notice soliciting comments from the public on regulatory options for addressing Upholstered Furniture Flammability. These comments are related to the topic of regulatory alternatives, one of the topics suggested by the Commission.

I am not financially affiliated with, employed, or sponsored by any entity with an interest in the upholstered furniture proceeding. I represent only myself. I retired from the U.S. Consumer Product Safety Commission in 1999, having personally participated in the upholstered furniture activity as an employee.

These comments stem from my observation, particularly during the June 18-19, 2002, public meeting on the subject issue, that all interested parties seem to have lost any sense of urgency. No one seems concerned over the cost of spending more time to seek time-consuming alternatives or to tinker with a very good draft standard.

This letter intends to express my present frustration while suggesting a more positive direction.

This fact has been forgotten: we can anticipate approximately 632¹ people will die in the future for every year that intervention is postponed. This means that over 50 men, women, and children will likely die for every month of inaction. Of course, no standard will prevent all of these deaths. But, there is no question that the CPSC draft standard would prevent a meaningful portion of these future fire-related deaths. I am convinced that the CPSC staff has prepared a very good furniture flammability standard. It may not be a perfect standard, but it is a standard that will certainly prevent many unnecessary deaths in the future at a reasonable cost. Technical evidence indicates that this standard's approach of suppressing small open-flame ignition of the furniture's fabric covering has the greatest potential to prevent the most future fires and fire deaths.

¹ 632 individuals died in furniture fires per year in the five years between 1994 and 1998, according to the CPSC Report "1998 Residential Fire Loss Estimates," March 28, 2001.

Must we wait to study the issues further? Do we really need to conduct additional studies to verify what we already know? Why can't we apply the British experience to conclude that the draft standard can save lives at a reasonable cost? Do we have to hold off a useful standard in order to develop a more perfect standard that includes revised or new requirements, such as a filling material requirement? Why do furniture component manufacturers need three more years to bring new technology products to full production?

Consider what a terrible trade-off results, if the Commission hesitates now! One tacitly and quietly accepts a portion of 50 unneeded deaths for every month without a standard.

Actually, I do support the concept of a new requirement addressing the risk of ignition of filling materials. But, I do NOT support delaying for a single day the promulgation of a fabric requirement in order to add such a new provision.

I urge the Commission to immediately propose the CPSC draft standard that is now on the table, and to move with all haste to promulgate that standard. I believe that your staff has already provided sufficient evidence to support the mandated Findings. A filling material requirement (or any other improvement to the standard) should be developed separately, then added to the standard via the amendment process as soon as it was ready. This would allow the Commission to begin preventing deaths AS SOON AS POSSIBLE.

Commissioners, the CPSC staff was ready to proceed over four years ago, based on basically the same standard before you now. I do understand that your ability to proceed was taken away from you by the Congress for a portion of those four years. Still, a portion of more than 2500 future fire deaths to men, women, and children were not addressed due to this delay. Are we looking at another four years and many more deaths before there is some intervention? How can this price be justified?

Sincerely,

A handwritten signature in cursive script, appearing to read "James F. Hoebel". The signature is written in dark ink and is positioned above the printed name.

James F. Hoebel



Wearbest Sil-Tex Mills Ltd.

June 7, 2002

Mr. Dale Ray
Office of the Secretary
U.S. Consumer Product Safety Commission
Washington, DC 20207

Subject: Upholstered Furniture Flammability Proceeding

Dear Mr. Dale Ray:

Enclosed is an outline of Wearbest Sil-Tex Mill's concerns regarding the new proposed CPSC test.

We would like to take the opportunity offered to the industry by the CPSC to express the voice of the industry and the effect the proposed test is going to have on our business.

As a company, Wearbest is dedicated to the safety of the people and will try every step to improve our product to achieve that aim.

Regards,

Adity Phadnis
Director of Quality

PO Box 589, 325 Midland Ave., Garfield, NJ 07026, Tel. 973-340 8844, Fax 973-340 2900
Studio / Showroom: 127 West 25th Street, 6th Floor, New York, NY 10001, Tel. 212-633 6620, Fax 212-633 9480



Wearbest Sil-Tex Mills Ltd.

New standard for Small Open Flame Ignition of Upholstered Furniture Proposed by CPSC

1.1 New Proposal

The new plan proposes to introduce a small open flame ignition criteria to all upholstered furniture intended for residential use.

As has been our experience, the flammability of a piece of furniture has many components. It involves the flammability of the material of the furniture, the foam and finally, the fabric. The fabric forms the smallest but the most visual portion of the furniture or chair.

The furniture industry thrives on design and new concept ideas in furniture making. Decorative yarns make decorative fabrics that keep the interest in these fabrics alive.

The small open flame ignition test is a very severe test for decorative fabrics that these fabrics in their 'loom state' form are bound to fail. None of Wearbest' fabrics in our present line and constructions will meet the proposed test.

1.2 Finishing of Fabrics to meet the test

Fabrics could meet the CPSC proposed test with the help of a high degree of Flame retardant application.

Some fabrics might not meet this test even with the application of a flame retardant. Applying a flame-retardant will increase the cost of the fabric by \$2.00-\$3.00 per yard. (Based on approximate costs given by Synfin Industries). The flame-retardant backing ruins the hand of the fabric and cannot be used on a lot of decorative fabrics. Washed fabrics made with chenille will be rendered useless.

PO Box 589, 325 Midland Ave., Garfield, NJ 07026, Tel. 973-340 8844, Fax 973-340 2900
Studio / Showroom: 127 West 25th Street, 6th Floor, New York, NY 10001, Tel. 212-633 6620, Fax 212-633 9480

1.3 Barriers Fabrics

The test can be met with the application of expensive Fire Barriers. Fire Barriers can increase the cost of a piece of furniture, making it unusable for furniture suppliers. CPSC has suggested that fabrics that meet the proposed CPSC test with a fire barrier need not be tested. Using fire barriers puts the onus of meeting the test on the furniture market and in turn affects the market adversely.

1.4 Testing of Fabrics

CPSC has proposed a general format of testing product. It recommends testing each SKU when produced. One unit at Wearbest is approx. 60 yards. Each 60-yard piece, as per the CPSC regulation will have to be tested.

As per the minutes of the ATMI meeting on April 8, 2002, fabrics that use a barrier fabric need not be tested.

Some of our constructions can be treated to meet the CPSC FR standard but some will need a barrier fabric to meet the test since the FR will affect the aesthetic at the same time ruin the hand of the fabric.

Wearbest standard unit size production is 60 yards. Each 60-yard piece has a unique construction in terms of yarns and weaves. Due to this it is required (As per CPSC) to test each of this 60 yard pieces.

CPSC requires 3 test per 60 yards piece.

If Wearbest produces 500 pieces a week (of which we can assume that 250 pieces will be treated to an FR to meet the CPSC proposed test, 250 pieces will need a barrier fabric).

The 250 pieces per week that will be tested will cause us expenses as follows:

3 tests per piece = $3 \times 250 = 750$ tests

The Govmark Organization has approximated the cost of the test to be \$190.00 per test.

$\$190.00 \times 750 = \$142,500$ per week

Wearbest works for 50 weeks every year.

Therefore, the cost of testing alone will be \$7,125,000/ year.

Our company can definitely not afford this testing cost.

The cost of the fabric required for testing has not been included in this cost analysis.

Also, there will be a considerable cost related to the failure of a test. If a fabric fails the piece will have to be rewoven, refinished and re tested.

1.5 Record keeping

The large testing requirements suggested will put enormous pressure on our computer system.

The record keeping will require new software, added labor and storage space. These records would also be required to be maintained for the duration of time for the life of the fabric causing a huge bottleneck in record keeping.

1.7 Education

A very important aspect of reducing the deaths by furniture fires is the education of the final consumer. Education can be provided by providing hand outs with every piece of furniture about the danger of using small open flames near upholstery and the importance of smoke detectors.

Also, it is very important for furniture manufacturers to emphasize to the final consumer the need to change smoke detector batteries every year.



P.O. Box 31331
Charlotte, N.C. 28231
704-357-2000 • Fax: 704-357-2121

July 8, 2002

Office of the Secretary
Consumer Product Safety Commission
Washington, DC 20207-0001

Re: 16 CFR Chapter 11; Regulatory Options for Addressing Upholstered
Furniture Flammability; Public Meeting.

Dear Mr. Secretary:

Wellman, Inc., a publicly held (NYSE symbol "WLM") Delaware corporation ("Wellman") would like to accept the invitation extended from the Consumer Product Safety Commission (CPSC) in the Federal Register on March 20, 2002 and submit these comments related to the regulatory options for addressing upholstered furniture flammability. Wellman manufactures and markets polyester products, including Fortrel® brand polyester textile fibers, polyester fibers made from recycled raw materials, Perma Clear® brand PET (polyethylene terephthalate) packaging resins and EcoClear® brand PET packaging made from 100% recycled postconsumer PET beverages containers. Wellman utilizes a significant amount of recycled raw materials in its manufacturing operations. Wellman's polyester products are used in a variety of end-use applications, including furniture batting, fiberfill and upholstery.

These comments are submitted before the July 18, 2002 deadline for written comments. Wellman did not wish to orally present these comments during the public meetings on June 18-19, 2002.

Wellman currently supplies manmade fiber to textile manufacturers that may in turn supply the furniture industry. Wellman supports the efforts of the CPSC and other agencies to reduce the hazards of small open flame ignitions of upholstered furniture. It is Wellman's position that the United States furniture industry will be able to respond to reasonable, scientifically based federal regulations provided the industry works collectively. Evidence of success has been demonstrated by the British furniture industry responding to the UK regulations first introduced in 1988 (*see* "Effectiveness of the Furniture and Furnishings (Fire) (Safety) Regulations 1988", Government Consumer Safety Research, Department of Trade and Industry (UK), June 2000).

Wellman supports the CPSC's proposal to allow manufacturers to conduct an alternative barrier test. Using a fire retardant barrier does allow consumers to retain comfort and aesthetics that

may not be achieved with flame retardant treated or back coated cover fabrics alone. Furthermore, the fact that the criteria for ignition described in § 4.2 of the draft Standard for Upholstered Furniture (Rev. Oct. 2001) does not include a maximum percent weight loss is logical since different cover fabric styles would have different weights and contribute a different proportion to the initial sample weight. If the CPSC had elected to include a maximum percent weight loss criteria to the draft, heavier fabrics would likely fail the percent weight loss criteria without posing a greater fire hazard.

Wellman would like to see the CPSC clarify the definition of "flame front" used in the criteria for flaming ignition described in § 4.2.2 (c) of the draft. During a question and answer session at the American Furniture Manufacturers Association Flammability Workshop held in Greensboro, NC, on March 5, 2002, Dale Ray, CPSC Project Manager for Upholstered Furniture, attempted to better define "flame front". It is Wellman's recollection that Mr. Ray defined the "flame front" as the base of the flames not the tip of the flames. This subtle difference becomes important when evaluating a burning specimen to determine if a flame front has reached the edge, especially on the vertical portion of the test apparatus described in § 8.

Also, Wellman requests the CPSC to clarify the decision to use the British Standard 5852 Crib #5 described in § 6.3 as the ignition source for the Alternative Barrier Test Procedure in § 13 instead of using the butane gas flame described in § 6.2. The stated purpose of this standard is to protect upholstered furniture from small open flame ignition. The 20 sticks of Scots pine for the British Standard 5852 Crib #5 is a much larger ignition source than the 35mm butane flame for 20 seconds. Wellman understands that the CPSC wishes to evaluate the performance of fabric composites (cover fabric and interliner); however, the British Standard 5852 Crib #5 appears to be excessive with respect to calorific output. Wellman supports the CPSC's effort to provide safer furniture for consumers, but it is not clear to Wellman why the Alternative Barrier Test seems more rigorous than the Seating Area Test. Any information or data that explains this choice in ignition sources would help Wellman as well as others that may have the same concern.

Wellman respectfully thanks the CPSC for the opportunity to comment on the draft Standard for Upholstered Furniture (Rev. October 2001). Moreover, Wellman appreciates the latitude allowed by the CPSC for industry to determine which means are applied to achieve the upholstered furniture's resistance to small open flame ignition. Please contact us if you have any questions regarding these comments.

Sincerely,



John Hobson
Group Vice President



Executive Offices

PO Box 1459 Wayne, NJ 07474-1459
Telephone 973-633-9044
Fax 973-628-8986
E-mail loupeters@pfa.org

July 18, 2002

cpsc-os@cpsc.gov

Office of the Secretary
U.S. Consumer Product Safety Commission
Washington, D.C. 20207

Re: *Comments on Briefing Package Entitled "Upholstered Furniture Flammability: Regulatory Options"*

Dear Sir or Madam:

The Polyurethane Foam Association (PFA) is pleased to submit comments on the above stated briefing package.¹ After carefully reviewing the staff briefing package of October 2001 and attending the public hearings on June 18th and 19th, the Polyurethane Foam Association would like to offer the following observations.

The PFA filed a document entitled "Overview of the Combustibility and Testing of Filling Materials and Fabrics for Upholstered Furniture" on July 20, 1998. This overview was prepared for the PFA by Dr. Herman Stone and deals with more than 25 years of history on the subject of flammability testing of flexible polyurethane foam and other materials similarly used in the production of upholstered furniture. As this document pointed out, flammability testing is an extremely complicated matter under any circumstance. The reaction of materials can differ with regard to the type of ignition source, i.e., open flame or smolder. Unpredictable interactions between the covering material, possible inter-layers, the filling material or the cushioning system usually occur.

The CPSC staff and stakeholders have come much closer together in addressing the risk represented by small open-flame ignition of upholstered furniture. There appears to be a growing consensus that any type of test should address the hazard posed by a finished article as opposed to focusing on individual components. The PFA believes that for a small open-flame flammability standard to be meaningful, it must address the performance of a finished article of upholstered furniture in a real fire situation. Small open-flame fires are reflective of a synergy between the covering material, the cushioning material, other components in the furniture, and their unique method of assembly or finished geometry. While no small-scale test will address the performance of every single fire, it should be representative of how most finished products will perform in a real fire situation. The PFA also recognizes the need for and supports the development of

¹ The Polyurethane Foam Association is a not-for-profit trade association representing manufacturers of flexible polyurethane foam, both slab stock and molded, and their chemical and equipment suppliers.

bench scale tests, which address the performance of components, for manufacturing quality control purposes so long as the results of such tests have a reasonable relationship to the performance of the finished upholstered furniture article in a real fire situation.

The PFA is pleased to see that the CPSC has proposed an alternative compliance option to allow furniture manufacturers to incorporate qualified barrier materials in their products. The use of barrier materials will minimize the burden of sampling, testing and record-keeping by furniture manufacturers. It would also preserve the choice of covering materials for consumers. The PFA supports the CPSC's approach to permit the use of qualified barrier materials as an alternative to the proposed test method.

One issue that continues to be elusive is the objective of the proposed flammability standards. The requirement for testing should be related to an identifiable risk, and the results should provide a positive response to that risk involving a particular product such as a piece of upholstered furniture. Is the objective to prevent ignition entirely, or is it to slow flame spread to allow additional time for people to escape from the room? Different approaches are required to address these two alternatives. Prevention of ignition of upholstered furniture would require significant re-designs and reengineering of the product, as well as increasing costs substantially. It could also limit choices available to consumers. The other objective, slow flame spread to give people more time to exit the burning room, would allow greater flexibility in achieving the goals of the standard. The PFA strongly suggests that the standards should permit flexibility and encourage innovation as opposed to establishing rigid and inflexible requirements. Whatever objectives and standards are adopted for small open-flame, it should not diminish the smolder ignition performance of the product.

To reiterate the PFA's long-standing position on flammability based on a long history of active involvement in technically supportable fire tests applicable to upholstered furniture, PFA supports a composite standard, which has been demonstrated to be reproducible. PFA also supports a component bench scale test for quality control purposes, as long as such test bears a reasonable relationship to the performance of the composite article. The resultant upholstered furniture products offered in the marketplace should be comfortable, affordable and durable. Finally, the consumer must not be falsely led to expect "fire proof" furniture, but must be educated to the fact that the furniture will burn. The consumer education should teach responsible action and encourage the use of detection, alarm and suppression systems.

Sincerely,

A handwritten signature in black ink, appearing to read "Louis H. Peters", with a stylized, cursive script.

Louis H. Peters

Cc: Dale Ray (dray@cpsc.gov)